BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions of subjects for discussions invited.

NAUSEA OF PREGNANCY

H. A. STEPHENSON, M. D. (490 Post Street, San Francisco).—*Etiology.* At least one-half of all pregnant women suffer from the nausea and vomiting of pregnancy. In most patients this condition is not severe and disappears spontaneously. In a certain percentage, however, the condition is severe and rather persistent; so that it may then be classified as pernicious. In this group the mortality is sufficiently high to justify strenuous measures in prevention and treatment. The margin of safety is, in some instances, so small that it is difficult to differentiate early between the extremely and the less serious cases. The symptoms in the two groups are the same except for degree of severity.

Etiology is entirely uncertain, but the possibilities will be enumerated:

1. Reflex disturbances from other parts of the body: Those to which significance has been attached have been usually malpositions of the uterus or disease of the adnexa. Occasionally correction of such findings results in marked improvement. Many obstetricians believe that such improvement is the result of suggestion rather than the changing of the original finding. Certainly suggestion plays an important rôle in the treatment of hyperemesis.

2. Neurosis or psychoneurosis also plays a part: In many patients there is an underlying nervous instability. The emotional upsets that occasionally accompany a pregnancy may be the exciting factor in the manifestation of such a neurosis.

3. True gastric disease: In a very few instances local gastro-intestinal disease may be found. The number of such patients is very inconsiderable, and a careful history and examination usually suffice for a correct diagnosis.

4. Focal infections: Certainly in any case one should not overlook the influences which might result from focal infections regardless of their location. These may manifest themselves in the teeth, tonsils, urinary and gastro-intestinal tract.

5. Endocrine disturbance causing changes in metabolism: There is abundant evidence to support the belief that metabolism is changed during pregnancy, and work on the various glands has determined that they show marked changes in function during pregnancy. Our knowledge, however, does not lead to the conclusion that any endocrine change is so constant that it accounts for the hyperemesis. Treatment of the condition by the use of glandular extracts may again be explained by the suggestion associated with their administration.

6. A true toxemia resulting from the introduction into the maternal system of fetal products: Abundant evidence is at hand to show that fetal products are constantly introduced into the maternal circulation and are carried to various parts of the body. This may result in a toxemia or poisoning in certain patients with a high degree of susceptibility to such products and may cause certain pathology of important organs. Carried to a higher degree, the result is loss of function of these organs and changes in the entire organism which may lead to death. Certainly this theory must be taken rather seriously in the light of our present knowledge.

Regarding pathology, one finds at autopsy the greatest change in the liver. There is usually considerable degeneration and necrosis, particularly around the hepatic vein. The kidneys usually show secondary changes, giving a picture similar to that found in the so-called cloudy swelling of the kidney. These findings, however, are by no means constant. During the course of the illness one has very little pathology which is demonstrable. Blood chemistry has been found to be of no importance. The appearance of urobilin and urobilinogen in the urine may not necessarily mean a severe form of the disease; but when they persist in spite of treatment, it usually means a rather diminished ability of the liver to regenerate itself. There are also the changes resulting from starvation and dehydration.

In summary, we may say that the pathology is fairly well known, but the etiology remains only conjecture, with the weight of present knowledge favoring a toxemia, most probably of fetal origin.

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FLOYD JAMES LEE, M. D. (710 Wilshire Boulevard, Santa Monica).—*Symptoms and Diagnosis.* The gestational alterations of those organs which govern metabolic process, with the resultant adjustments of the entire maternal organism, result in either a normal metabolic balance or a disturbed one. Nausea of pregnancy is a symptom due to altered organic function.

So common a finding is this symptom that we almost accept it as a part of the pregnancy, until the nausea and vomiting arrive at the stage of toxic vomiting of pregnancy. This stage is characterized by uncontrollable vomiting, rapid emaciation, and the terminal stages of delirium and coma.

Nausea of pregnancy is defined as one of the manifestations of the toxemia of pregnancy occurring during the early months of pregnancy. The essential cause is as yet unknown. All cases of nausea of pregnancy have a common underlying cause which may show itself in various phases.

The most satisfactory theory, at least from the standpoint of treatment, has been the disturbance of the carbohydrate metabolism, first stated by

Duncan and Harding in 1918. A disturbance of the carbohydrate metabolism is a common feature, and the condition of the glycogen-depleted liver, the occurrence of ketosis, the periodicity of the symptoms with the time in pregnancy when there is a negative nitrogen balance and when the carbohydrate storehouse, the placenta, is as yet not formed.

One other theory—that of E. Aburels, announced in 1931—given a nervous spasmophelic and have a susceptible individual, the irritation of the uterus during pregnancy produces a uterogastric reflex, causing a spasm of the pyloric reflex of the stomach, and vomiting results.

Clinically, no satisfactory distinction can be made between toxic and neurotic vomiting.

Course and Symptomatology.—Usually the physician's attention is directed to a case of aggravated "morning sickness." The severe symptoms usually appear in the third month at about the time the patient should be over her nausea of pregnancy. The nausea and vomiting increase in severity, the frequency varying from emesis several times a day to immediate rejection of any food or liquids taken. The partial or complete abstention of food, coupled with the loss of fluids by vomiting, cause an acute anhydremia. This creates a concentration of the serum proteins, which soon leads to liver degeneration. Liver degeneration is caused by anhydremia, and concentration of serum proteins rises.

Morning Sickness.

"Morning sickness" occurs in early weeks of pregnancy, and is characterized by:

1. Nausea.
2. Vomiting worse at some period of the day. Able to retain food and water at times.
3. Tends to spontaneous adjustment at about the fourth month.

Toxic Vomiting.

1. Usually in the third or fifth month.
2. Vomiting continuous upon ingestion of food or water.
3. Rapid loss of weight and strength.
4. Pulse rapid.
5. Urinary changes present (acetone and diacetic).
6. Not maintaining a normal water balance, as shown by low daily output of urine with high specific gravity.
7. Delirium and coma.

Urinalysis.

Specific gravity greater than 1010.
Low output for patient.
Acetone and diacetic.
Urobilinuria, severe type, with liver damage; prognosis poor.

Pulse.

Pulse if increasing and above 100; prognosis grave.

Our diagnosis rests, then, on a gestational history with physical examination and the symptoms due to: starvation, dehydration, hepatic derangement, and neurosis.

Stated again, we must consider: an accurate and positive diagnosis of pregnancy; the signs and symptoms of nausea of pregnancy; and the urinary findings.

A careful and complete physical examination will distinguish between emesis due to pregnancy and emesis during pregnancy. Emesis during pregnancy may be due to causes having no relation to the pregnancy, such as: reflex vomiting due to displacement of uterus, tumors, diseases of adnexa; gastric ulcer, gall-bladder disease; bowel obstruction; and neurotic vomiting.

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JOHN W. SHERRICK, M. D. (350 Twenty-ninth Street, Oakland.—*Treatment and Prognosis.* In attempting to outline a rational treatment of the nausea of pregnancy, one is faced with two difficulties: first, the widely divergent and often bizarre and wholly inadequate views advanced in an attempt to explain its causal factors; second, the confusion that exists as to the proper procedure to follow. There is no recommended routine method applicable to any or all classes of cases, but in each instance one must consider the individual. While certain general routine principles have been established, these must be changed as circumstances demand, and in every case all causal and related factors must be evaluated because of their bearing upon the details of therapy.

Fundamentally, the nausea of pregnancy, whether classed as neurotic, reflex, toxic, mild, moderate, severe, physiologic, etc., is the same in all except for degree, some factors being more prominent in one than in another. No matter how mild the condition, we prefer to consider all cases as presenting, sooner or later, some toxic element arising from the products of gestation with resultant metabolic disorder. While the majority of cases are of minor degree and are strictly self-limited, all are potentially capable of progressing to a much more serious state, and it is this type we are most concerned with in this discussion, and which presents the following characteristics forming the keynote upon which treatment is based. First, liver dysfunction with hypoglycemia, inability to store up glycogen, acidosis, disability to detoxify substances from the intestinal tract; second, low sodium chlorid, with a condition somewhat analogous to intestinal obstruction; third, dehydration which may be considered the key to the condition; fourth, loss and lowering of free hydrochloric acid and of total acid in the stomach from vomiting or from regurgitation of alkaline intestinal contents with neutralization of acid, when alkalosis may result.

The individual who is essentially unstable, or nervously or physically inadequate, is the one who is the most likely to react excessively to the stress of pregnancy. For this reason the ideal situation in the treatment of vomiting of pregnancy would be a thorough study of the patient's physical stability or inadequacy, and an analysis of her nervous and mental state before her pregnancy, with eradication of any possible factors that may directly or indirectly add to its stress and strain.

Treatment is based on the assumption that vomiting of pregnancy is a condition of potentially progressive seriousness. Of prime importance is: first, early recognition of the condition and institution of a definite regimen characterized by reassurance and an air of confidence and under-

standing. Prolonged and frequent periods of rest and relaxation, preferably in the fresh air, are essential, and the patient should avoid undue physical fatigue and the nervous tension and strain of social engagements. Many cases are mild and will not require more than intelligent prenatal supervision with a more or less uniform regimen. Most patients will get well regardless of the type of treatment. Second, the evaluation and elimination of such existing pathologic conditions as anemia, foci of infection, abdominal pathology, pelvic irritation, and nervous influences. Third, diet control characterized by frequent small feedings of high caloric value including dry, salty foods (pretzels, saltine wafers, potato chips, dried beef, crisp bacon, etc.), carbohydrates (desserts, cakes, candies, fruits). The patient should avoid the odors of cooking and the messiness of kitchen work. Dilute hydrochloric acid may sometimes be used to advantage to maintain the chlorid balance. An occasional gastric lavage with soda bicarbonate solution, or a dilute hydrochloric acid solution, is essential in the presence of reversed peristalsis with bile in the stomach. Fluids should be ingested between feedings in amounts sufficient to maintain normal metabolism requirements and kidney output—fruit juices, tea, coffee, milk, and charged waters. Daily bowel movements are secured by diet control, vitamin B, suppositories, soda enemas, mild cathartics. We advise against the use of most cathartic aids taken by mouth, as they may add to the nausea. Fourth, mild sedatives of a character and amount to control any nervous tension and gastric irritability—sodium bromid, phenobarbital and phenobarbital sodium by mouth or rectum, or luminal sodium hypodermically. Some give as an aid to the latter whole ovary or corpus luteum extract alone or combined with placental extract (we are at a loss to evaluate their real usefulness, but feel that they have often proved useful). Hypodermic medication may be given to advantage at the patient's home by some member of her household.

The above suggestions altered to meet the individual case serve usually to control the mild and moderately severe types of nausea of pregnancy. But some individuals do not respond to these measures, and the condition takes on a steadily progressive and more severe reaction with marked dehydration, starvation and other evidences of severe toxemia, and demands additional and more heroic treatment. This implies complete bed rest, preferably in a hospital, under the care of a nurse experienced in this particular problem; one who combines sympathy, understanding, firmness, insight and tact.

All food, medication and fluid by mouth are withheld except to permit of gastric lavage with soda bicarbonate solution and cleansing of the mouth with an alkaline wash. The bowel is thoroughly emptied by means of a soda or saline enema, or high colonic irrigation. After permitting the bowel to rest for an hour saline or five per cent glucose and two per cent soda bicarbonate in saline is administered by proctoclysis in amounts of ten to twelve ounces and repeated four hourly. To the first amount is added sodium or triple bromid grains thirty to forty; to the second two drams of compound tincture of opium, etc. We prefer the small and oft-repeated retention enema to the continuous drop method, although the reservoir permits of expulsion of the gas and maintains a constant amount of fluid in the colon. Care must be taken to avoid irritation of the bowel to the point of intolerance.

One thousand cubic centimeters of 10 per cent glucose solution are given intravenously and repeated in twelve hours as necessary to maintain fluid requirements and to offset the hypoglycemia and the starvation acidosis. This should be given very slowly to avoid any reaction. Some advocate insulin in divided doses, thirty units in all, to aid in the utilization of the carbohydrate. May we suggest, however, that insulin often carries very definite risks and should be used with great caution! Adrenalin should be available for emergency. Normal saline or Fischer's solution is given by hypodermoclysis as demanded by the dehydration and the chlorid need. At least three thousand cubic centimeters of fluid are needed daily. Alkali medication, in the form of soda bicarbonate or potassium citrate, is utilized as necessary to aid in overcoming acidosis. Dilute hydrochloric acid is used for an alkalosis. One may make use of repeated gastric lavage with an alkaline solution, or with a dilute hydrochloric acid, utilizing the duodenal tube. This may be introduced into the duodenum and left in place to permit of installation of fluid, food, sedative, thus supplementing or replacing intravenous therapy.

With the dehydration and acidosis overcome, and gastric and nervous stability and liver function restored, food and fluid intake may be resumed. The patient is first given water in small amounts at frequent intervals and this is soon followed by food. A carefully selected diet is chosen by the nurse or dietitian and is attractively served in small amounts, the patient being instructed that she must eat all that is placed before her. Luminal sodium is given, hypodermically, twenty minutes before eating, the dose being gradually cut down. The patient is assured that she cannot vomit after taking this medicine. Food and fluid intake are increased as the patient can tolerate them until a full diet is resumed. One should never lose sight of the individual nature of each case, and of the importance of suggestion, reassurance, confidence, understanding and tact in dealing with this problem. Early treatment will usually prevent the development of the more pernicious form of the condition.

As regards prognosis, one may state with certainty that nausea of pregnancy is curable in by far the majority of cases. At least 50 per cent of all cases are controlled by intelligent prenatal care, proper regulation of diet and hygiene, mental suggestion, etc. The severe form should respond to intensive treatment as outlined. Rarely termination of the pregnancy by abortion may be necessary, in spite of adequate treatment in the presence of persistent vomiting, dehydration, fever, high pulse, jaundice. A good index as to progress in the wrong direction is a rise in pulse and a fall in blood pressure.